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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,299	02/09/2004	Tomomi Yamada	118041	8749
25944	7590	11/12/2004		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER ESHETE, ZELALEM	
			ART UNIT 3748	PAPER NUMBER

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/773,299	<b>Applicant(s)</b> YAMADA ET AL.
	<b>Examiner</b> Zelalem Eshete	<b>Art Unit</b> 3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2004.
- 2a) ☒ This action is **FINAL**.      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-12 and 14-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3 and 10-12 is/are allowed.
- 6) ☒ Claim(s) 5-9 and 14-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

This Office Action is in response to the amendment filed on 10/07/2004.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 5,6,8-9,14,15,17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoeda et al. (6,276,317).

Regarding claims 5,14: Yoeda discloses a method and valve drive system for an internal combustion engine, comprising: a plurality of valves (see numerals 66,68); springs urging each of the valves towards a middle position between a fully open position and a fully closed position (see figure 2); magnets each supplied with current to generate electromagnetic force to retain each of the valves at the fully open or closed position against the urging force of each spring (see numerals 90,94), and a controller that is adapted to stop application of current to at least one magnet for a first valve or a first valve group among the valves at a first timing and stop application of current to at least one magnet for a second valve or a second valve group among the valves at a second timing that is different from the first timing when the internal combustion engine

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is to be stopped (see figure 4). Yoeda also discloses a controller that is adapted to control application current to the magnet in such a way that the magnet generates electromagnetic force to bring the valve to the middle position while suppressing free oscillation of the valve when the internal combustion engine is to be stopped (see figure 4; column 10, lines 47 to 57).

Regarding claims 6,15: Yoeda discloses the valves are intake valves and exhaust valves of the internal combustion engine (see numerals 66,68).

Regarding claims 8,17: Yoeda discloses the controller is further adapted to stop application of current to the magnet at a predetermined timing when the valve has been brought from the fully open or closed position to a prescribed position close to the middle position (see figure 4).

Regarding claims 9,18: Yoeda discloses the valve is provided in plurality, and the predetermined timing is set for each one of the valves or each one of valve groups formed among the valves (see figure 4).

Regarding claims 19-22: Yoeda discloses the claimed invention as recited above; and further more discloses a method and a controller that is adapted to stop application of current to at least one magnet for a first valve or a first valve group that is associated with a first cylinder at a first timing (see figure 4, #2 cylinder, valve 68); and stop

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application of current to at least one magnet for a second valve or a second valve group that is associated with a second cylinder at a second timing that is a predetermined time later from the first timing when the internal combustion engine is to be stopped (see figure 4, #1 cylinder, valve 68); wherein the predetermined time being the time needed for a free oscillation of the first valve to decay to a specific level (see figure 4, #2 cylinder, valve 68).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7,16 rejected under 35 U.S.C. 103(a) as being unpatentable over Yoeda in view of Toriumi (6,343,577).

Yoeda discloses the claimed invention as recited above; however, fails to disclose a valve lifter lift detector for detecting an amount that the valve is lifted, wherein the controller is further adapted to perform a feedback control such that the detected valve lift amount converges on a prescribed target amount that changes with time.

However, Toriumi teaches a "valve lifter lift" detector for detecting an amount that the valve is lifted, wherein the controller is further adapted to perform a feedback control

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such that the detected valve lift amount converges on a prescribed target amount that changes with time (see column 1, lines 57 to 65).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Yoeda's system by providing a feedback control as taught by Toriumi in order to achieve a desired output.

***Allowable Subject Matter***

5. Claims 1-3,10-12 are allowed.

***Response to Arguments***

6. Applicant's arguments filed 10/07/2004 have been fully considered but they are not persuasive.

7. With respect to applicant's argument on page 8,9: Although Yoeda deals with other purposes for the invention, Yoeda discloses all the claim limitations including the teaching of suppressing free oscillation of the valve when the internal combustion engine is to be stopped, in that, the controller is adapted to stop application of current to at least one magnet for a first valve or a first valve group that is associated with a first cylinder at a first timing (see figure 4, #2 cylinder, valve 68); and stop application of current to at least one magnet for a second valve or a second valve group that is associated with a second cylinder at a second timing that is a predetermined time later from the first timing when the internal combustion engine is to be stopped (see figure 4, #1 cylinder, valve 68); wherein the predetermined time being the time needed for a free

oscillation of the first valve to decay to a specific level (see figure 4, #2 cylinder, valve 68).

8. With regard to applicant's argument on pages 9,10: Yoeda shows the intake and exhaust valve positions for four cylinders when the engine is to be stopped (or the ignition switch is turned OFF) as shown in figure 4. Again, Yoeda discloses all of the claim limitations as discussed above including the limitation where the second valve oscillation begin when the first valve oscillation decays through current control to the electromagnetic valve control (see the exhaust valves of the first cylinder and the second cylinder as shown in figure 4).

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

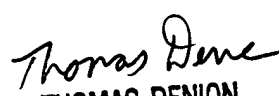
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zelalem Eshete whose telephone number is (703) 306-4239 or the new telephone is (571) 272-4860 effective 11/23/2004. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (703) 308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zelalem Eshete  
Examiner  
Art Unit 3748

Z

  
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